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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/699,127	10/30/2003	Hyun Woo Song	2013P115	4968

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EXAMINER

PRENTY, MARK V

ART UNIT PAPER NUMBER

2822

DATE MAILED: 12/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/699,127

Applicant(s)

SONG ET AL

Examiner

MARK PRENTY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 15-23 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 1-13 and 15-17 is/are allowed.  
6) ☒ Claim(s) 18-22 is/are rejected.  
7) ☒ Claim(s) 23 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_.

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This Office Action is in response to the amendment filed on November 13, 2006.

Claims 18-22 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over United States Patent 5,493,577 to Choquette et al. (Choquette). See MPEP 2113.

As to independent claim 18, Choquette discloses a semiconductor optical device (see the entire patent, including the Fig. 2 disclosure) comprising: confinement-conducting regions having semiconductor layers 20 (see column 10, lines 15-18, for example, and note that "carder" should apparently read "carrier"), each of the confinement-conducting regions including one or more material layers (note the paragraph bridging columns 12-13); and a gain region 18 having a semiconductor layer, which is formed between the confinement-conducting regions and includes one or more material layers, wherein the confinement-conducting regions and the gain region have a mesa structure, and a lateral portion of at least one of the material layers constituting the semiconductor layers of the confinement-conducting regions and the gain region is recessed, and the recess is partially or wholly filled with an oxide layer, a nitride layer or a combination of them (i.e., layers 20 have oxidized portions, which is structurally tantamount to their having recesses wholly filled with an oxide layer), wherein at least one reflecting mirror 14 is further formed so as to be parallel with the confinement-conducting regions and the gain region such that output light is perpendicular to the confinement-conducting regions and the gain region.

The difference between device claim 18 and Choquette's device is they are formed by different processes. Specifically, device claim 18 now recites a recess

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“formed by selectively etching the lateral portion of at least one of the material layers and the material layers surrounding the recess are not selectively etched” and filled “by deposition” with an oxide layer, a nitride layer or a combination of them (Choquette’s layers 20 have oxidized portions).

However, the oxidized portions of Choquette’s layers 20 appear to be structurally the same as or similar to device claim 18’s recesses filled with oxide.

Claim 18 is thus rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Choquette. See MPEP 2113.

As to dependent claim 19, its oxide layer is formed using a different process (atomic layer deposition), but it appears to be structurally the same as or similar to the oxidized portions of Choquette’s layers 20.

Claim 19 is thus rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Choquette. See MPEP 2113.

As to dependent claim 20, Choquette’s oxide layer is formed of  $\text{Al}_2\text{O}_3$  (i.e., aluminum oxide – see column 9, lines 22-24).

Claim 20 is thus rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Choquette. See MPEP 2113.

As to dependent claim 21, Choquette’s semiconductor layers 20 constituting the confinement-conducting regions are one of a p-type semiconductor layer, an n-type semiconductor layer and a combination of them (see column 6, lines 46-54, together with column 10, lines 4-14).

Claim 21 is thus rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Choquette. See MPEP 2113.

As to dependent claim 22, Choquette's semiconductor layer 18 constituting the gain region is one of a p-type semiconductor layer, an n-type semiconductor layer, and an undoped semiconductor layer (see column 8, lines 17-25).

Claim 22 is thus rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Choquette. See MPEP 2113.

Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable over the prior art of record if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-13 and 15-17 are allowable over the prior art of record.

The applicant's arguments are not persuasive.

The applicant's allegation: "Firstly, amended Claim 18 including an oxide layer (or a nitride layer, or a combination of both) is substantially different from Choquette including a control layer in view of the structure" (emphasis in original) is unsubstantiated. The applicant fails to provide any evidence to support its allegation. See MPEP 2113.

The applicant's allegation: "Accordingly, the material layers surrounding the recess or filled material (e.g., oxide) in amended Claim 18 are substantially different from those surrounding the control layer in Choquette," (emphasis in original) is unsubstantiated. The applicant fails to provide any evidence to support its allegation. See MPEP 2113.

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The applicant's allegation: "Secondly, the oxide layer (the nitride layer, or a combination of both) in amended Claim 18 is substantially different from the control layer in Choquette in view of the structure, quality, and adhesion characteristics," (emphasis in original) is unsubstantiated. The applicant fails to provide any evidence to support its allegation. See MPEP 2113.

The applicant's argument: "Thirdly, the oxidation process in Choquette is not commercially applicable to the semiconductor optical device recited in amended Claim 18," (emphasis in original) does not appear to be relevant to the rejection of device claim 18, which is premised on reading claim 18's device on Choquette's device, not on making claim 18's device using Choquette's process.

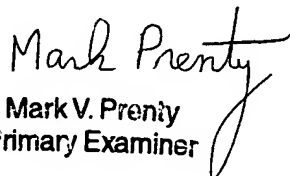
The applicant's argument: "the selective etching and deposition processes recited in amended Claim 18 are superior to the oxidation process disclosed by Choquette," does not appear to be relevant to the rejection of device claim 18 in view of Choquette. The issue is not whether device claim 18's etch/deposition process is superior to Choquette's oxidation process, but whether claim 18's device is structurally the same as or similar to Choquette's device. See MPEP 2113.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Registered practitioners can telephone the examiner at (571) 272-1843. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the Application/Control (Serial) Number. Technology Center 2800's general telephone number is (571) 272-2800.

  
Mark V. Prentz  
Primary Examiner